IN THE CLAIMS:

Please amend the claims as follows:

1. (currently amended): Method for fabricating microstructures comprising:

a. forming a first protective layer on a surface of a silicon wafer;

b. forming at least one opening in said first protective layer;

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c. etching at least one initial cavity in said silicon wafer through said opening with at least one etching step other than anisotropic etching and with said cavity having at least part of its formed side walls at an angle larger than the minimum angle between {111} crystallographic planes and the surface of the wafer; and

d. forming a microstructure with anisotropic etching.

2. (original): Method of claim 1, in which the surface of said silicon wafer has crystallographic orientation (100), (110) or (111).

3. (original): Method of claim 1, in which said protective layer contains at least one of the following materials: silicon dioxide, silicon nitride, silicon carbide, photoresist, polyimide or metal.

4. (original): Method of claim 3, in which said opening in the protective layer is formed by lithographic process.

5. (original): Method of claim 1, in which the etching step C is one of following: reactive ion etching (RIE), plasma etching, atmospheric downstream plasma (ADP) etching, isotropic wet etching, laser etching, electromechanical etching, photoetching, electrostatic discharge etching or any combination of the above.

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6. (original): Method of claim 1, in which the angle between said surface of the silicon wafer and said at least part of side walls of said cavity is in the range of 85°...95°.

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7. (original): Method of claim 1, in which said deep anisotronic etching step d. uses an etchant containing at least one of the following etch agents: alkali metal hydroxides, tetramethyl- ammonium hydroxide, ethylenediamine, hydrazine, gallic acid.

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8. (original): Method of claim 1, wherein said deep anisotropic etching step d. is performed in the presence of ultrasonic or megasonic vibrations in the etching solution.

9. (original): Method of claim 1, wherein said microstructure contains at least one diaphragm.

10. (original): Method of claim 1, wherein said microstructure contains at least one through hole.

11. (original): Method of claim 7, in which said protective layer contains at least one of the following materials: silicon dioxide, silicon nitride, silicon carbide, photoresist, polyimide or metal.

12. (original): Method of claim 11, wherein deep anisotropic etching is performed in the presence of ultrasonic or megasonic vibrations in the etching solution.

13. (original): Method of claim 1, further comprising the steps of:

e. forming a second protective layer on a side wall and the bottom of said cavity after step c;

f. removing said second protective layer from the bottom of said cavity; and then

g. conducting step d.

14. (original): Method of claim 13, in which a surface of said silicon wafer has crystallographic orientation (100), (110) or (111).

15. (original): Method of claim 13, in which said first protective layer contains at least one of the following materials: silicon dioxide, silicon nitride, silicon carbide, photoresist, polyimide or metal.

16. (original): Method of claim 13, in which said opening in the protective layer is formed by photolithographic process.

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17. (original): Method of claim 13, in which the etching step of step c is one of the following etching processes: reactive ion etching (RIE), plasma etching, isotropic wet etching, laser etching, electromechanical etching, photoetching, electrostatic discharge etching or any combination of the above.

18. (original): Method of claim 13, in which the angle between major surface of the semiconductor wafer and said side walls of said cavity is in the range of 85°...95°.

19. (original): Method of claim 13, in which said second protective layer contains at least one of the following materials: silicon dioxide, silicon nitride, silicon carbide, photoresist, polyimide or metal.

20. (original): Method of claim 13, wherein said deep anisotropic etching uses at least one of the following etching agents: alkali metal hydroxide, tetramethyl-ammonium hydroxide, ethylenediamine, hydrazine, gallic acid.

21. (original): Method of claim 13, wherein said deep anisotropic etching is performed in the presence of ultrasonic or megasonic vibrations in the etching solution.

22. (original): Method of claim 13, wherein microstructure contains at least one diaphragm.

23. (original): Method of claim 12, wherein microstructure contains at least one through hole.

24. (original): Method of claim 13, further comprising an additional isotropic etching step after said deep anisotropic etching.

25. (original): Method of claim 24, in which said isotropic etching is wet chemical etching using at least one of the following etch agents: nitric acids, hydrofluoric acid, acetic acid.

26. (original): Method of claim 24, in which said isotropic etching is plasma etching.

27. (original): Method of claim 13, wherein a RIE etching step and isotropic etching step precede said deep anisotropic etching step.

28. (original): Method of claim 27, in which said isotropic etching is wet chemical etching using at least one of the following etch agents: nitric acids, hydrofluoric acid, acetic acid.

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29. (original): Method of claim 27, in which said isotropic etching is plasma etching.

30. (original): Method of claim 27, in which said isotropic etching is gas xenon difluoride etching.

31. (original): Method of claim 13, further comprising an additional isotropic etching step after said deep anisotropic etching.

32. (original): Method of claim 31, in which said additional isotropic etching is wet chemical etching using at least one for the following etch agents: nitric acids, hydrofluoric acid, acetic acid.

33. (original): Method of claim 31, in which said additional isotropic etching is plasma etching.

34. (original): Method of claim 31, in which said isotropic etching is gas xenon difluoride etching.

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35. (original): Method of claim 1, further comprising the steps of:

h. forming a second protective layer on a side wall and bottom of said cavity after step c.

i. removing said second protective layer from the bottom of said cavity;

j. deepening said cavity with an etching step other than anisotropic etching and forming cavity side walls with an angle larger than the minimum angle between {111} planes and the surface of the wafer and then conducting step d.

36. (original): Method of claim 35, in which surface of said silicon wafer has crystallographic orientation (100), (110) or (111).

37. (original): Method of claim 35, in which said first protective layer formed on the surface of said silicon wafer contains at least one of the following materials: silicon dioxide, silicon nitride, silicon carbide, photoresist, polyimide or metal.

38. (original): Method of claim 35, in which said at least one opening in the protective layer is formed by lithographic process.

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39. (original): Method of claim 35, in which the etching step of step c is one of the following processes: reactive ion etching (RIE), plasma etching, isotropic wet etching, laser etching, electromechanical etching, photoetching, electrostatic discharge etching or any combination of the above.

40. (original): Method of claim 35, in which the angle between said major surface of the semiconductor wafer and said side walls of said cavity is in the range of 85°...95°.

41. (original): Method of claim 35, in which said second protective layer contains at least one of the following materials: silicon dioxide, silicon nitride, silicon carbide, photoresist, polyimide or metal.

42. (original): Method of claim 35, wherein said deep anisotropic etching uses at least one of the following etching agents: alkali metal hydroxide, tetramethyl-ammonium hydroxide, ethylenediamine, hydrazine, gallic acid.

43. (original): Method of claim 35, wherein said deep anisotropic etching is performed in the presence of ultrasonic or megasonic vibrations in the etching solution.

44. (original): Method of claim 35, wherein said microstructure contains at least one diaphragm.

45. (original): Method of claim 35, wherein said microstructure contains at least one through hole.

46. (original): Method of claim 35, further comprising an additional isotropic etching step after said deep anisotropic etching.

47. (original): Method of claim 46, in which said isotropic etching is wet chemical etching using at least one of the following etch agents: nitric acids, hydrofluoric acid, acetic acid.

48. (original): Method of claim 46, in which said isotropic etching is plasma etching.

49. (original): Method of claim 35, wherein a RIE etching step and isotropic etching step precedes said deep anisotropic etching step.

50. (original): Method of claim 49, in which said isotropic etching is wet chemical etching using at least one of the following etch agents: nitric acids, hydrofluoric acid, acetic acid.

51. (original): Method of claim 49, in which said isotropic etching is plasma etching.

52. (original): Method of claim 49, in which said isotropic etching is gas xenon difluoride.

53. (original): Method of claim 35, further comprising an additional isotropic etch step after said deep anisotropic etching.

54. (original): Method of claim 53, in which said isotropic etching is wet chemical etching using at least one of the following etch agents: nitric acids, hydrofluoric acid, acetic acid.

55. (original): Method of claim 53, in which said isotropic etching is plasma etching.

56. (currently amended): Method for fabricating microstructures comprising:

a. forming a first protective layer on a surface of a silicon wafer;

b. forming a plurality of openings in said first protective layer;

c. etching a plurality of initial cavities in said silicon wafer through said openings with at least one etching step other than anisotropic etching and with said cavities having at least part of their formed side walls at an angle larger than the minimum angle between {111} planes and the surface of said silicon wafer; and with at least some of said cavities being separated by formed side walls; and

d. forming a microstructure with deep anisotropic etching with at least one of said silicon walls separating adjacent cavities partially etched through to connect at least two of said cavities after said deep anisotropic etching.

57. (original): Method of claim 56, in which surface of said silicon wafer has crystallographic orientation (100), (110) or (111).

58. (original): Method of claim 56, in which said first protective layer contains at least one of the following materials: silicon dioxide, silicon nitride, silicon carbide, photoresist, polyimide or metal.

59. (original): Method of claim 58, in which at least one of said openings in the protective layer is formed by lithographic process.

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60. (original): Method of claim 56, in which the etching step of step c is one of the following: reactive ion etching (RIE), plasma etching, isotropic wet etching, laser etching, electromechanical etching, photoetching, electrostatic discharge etching or any combination of the above.

61. (original): Method of claim 56, in which the angle between said surface of the silicon wafer and said at least part of side walls of said cavity is in the range if 85°...95°.

62. (original): Method of claim 56, in which said deep anisotropic etching step d. uses an etchant containing at least one of the following etching agents: alkali

metal hydroxide, tetramethyl-ammonium hydroxide, ethylenediamine, hydrazine, gallic acid.

63. (original): Method of claim 56, wherein said deep anisotropic etching step d. is performed in the presence of ultrasonic or megasonic vibrations in the etching solution.

64. (original): Method of claim 59, in which said protective layer contains at least one of the following materials: silicon dioxide, silicon nitride, silicon carbide, photoresist, polyimide or metal.

65. (original): Method of claim 64, wherein deep anisotropic etching is performed in the presence of ultrasonic or megasonic vibrations in the etching solution.

66. (original): Method of claim 1, further comprising after step d, an additional step of deposition of a material on the surface of silicon wafer; said deposition of a material closes the opening in said protective layer.

67. (original): Method of claim 66, wherein said material contains at least one of the following substances: polycrystalline silicon, silicon, dioxide, silicon nitride, silicon carbide, gold, copper, nickel, silver, parylen, teflon or spin-on- glass.

68. (original): Method of claim 66, wherein said silicon wafer contains at least one sealed cavity.

69. (original): Method of claim 68, wherein the pressure in said sealed cavity is below atmospheric pressure.

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70. (original): Method of claim 66, wherein said cavity is a channel inside a silicon wafer.

71. (original): Method of claim 66, wherein at least one of the linear dimensions of said opening is smaller than ten micrometers.

72. (original): Method of claim 56, further comprising the steps of:

e. forming a second protective layer on the side wall and on the bottom of at least one of said plurality of cavities;

f. removing said second protective layer from said bottom and then conducting step d; and

g. forming a microstructure with deep anisotropic etching.

73. (original): Method of claim 72, in which surface of said silicon wafer has crystallographic orientation (100), (110) or (111).

74. (original): Method of claim 72, in which said first protective layer contains at least one of the following materials: silicon dioxide, silicon nitride, silicon carbide, photoresist, polyimide or metal.

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75. (original): Method of claim 72, in which said plurality of openings in said openings in said first protective layer is formed, by lithographic process.

76. (original): Method of claim 72, in which the etching step of step c is one of the following etching processes: reactive ion etching (RIE), plasma etching, isotropic wet etching, laser etching, electromechanical etching, photoetching, electrostatic discharge etching or any combination of the above.

77. (original): Method of claim 72, in which the angle between said major surface of the semiconductor wafer and said vertical side walls of said cavity is in the range if 85°...95°.

78. (original): Method of claim 72, in which said second protective layer contains at least one of the following materials: silicon dioxide, silicon nitride, silicon carbide, photoresist, polyimide or metal.

79. (original): Method of claim 72, wherein said deep anisotropic etching uses at least one of the following etching agents: alkali metal hydroxide, tetramethyl-ammonium hydroxide, ethylenediamine, hydrazine, gallic acid.

80. (original): Method of claim 72, wherein said deep anisotropic etching is performed in the presence of ultrasonic or megasonic vibrations in the etching solution.

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81. (original): Method of claim 72, wherein said microstructure contains bar or grid-like structure and at least one diaphragm.

82. (original): Method of claim 72, wherein said microstructure contains bar or grid-like structure and at least one through hole.

83. (original): Method of claim 72, further comprising an additional isotropic etching step after said deep anisotropic etching.

84. (original): Method of claim 83, in which said isotropic etching is wet chemical etching using at least one of the following etch agents: nitric acids, hydrofluoric acid, acetic acid.

85. (original): Method of claim 83, in which said isotropic etching is plasma etching.

86. (original): Method of claim 72, wherein a RIE etching step and isotropic etching step precede said deep anisotropic etching step.

87. (original): Method of claim 86, in which said isotropic etching is wet chemical etching using at least one of the following etch agents: nitric acids, hydrofluoric acid, acetic acid.

88. (original): Method of claim 86, in which said isotropic etching is plasma etching.

89. (original): Method of claim 72, further comprising an additional isotropic etching step after said deep anisotropic etching.

90. (original): Method of claim 86, in which said additional isotropic etching is wet chemical etching using at least one of the following etch agents: nitric acids, hydrofluoric acid, acetic acid.

91. (original): Method for fabricating microstructures comprising:

a. forming a first protective layer on a surface of a silicon wafer;

b. forming a plurality of openings in said first protective layer;

c. etching a plurality of cavities in said silicon wafer through said openings with at least one etching step other than anisotropic etching and with cavities having at least part of their formed side walls at an angle larger than the minimum angle between planes and the surface of the wafer;

d. forming a second protective layer on said side walls and on the bottom of said plurality of cavities;

e. removing said second protective layer from the bottom of at least some cavities;

f. deepening said plurality of cavities with etching step other than anisotropic with side walls forming with the surface of said silicon wafer an angle larger than the minimum angle between {111} planes and the surface of the wafer; and

g. forming a microstructure with deep anisotropic etching.

92. (original): Method of claim 91, in which surface of said silicon wafer has crystallographic orientation (100), (110) or (111).

93. (original): Method of claim 91, in which said first protective layer contains at least one of the following materials: silicon dioxide, silicon nitride, silicon carbide, photoresist, polyimide or metal.

94. (original): Method of claim 91, in which said plurality of openings in said first protective layer is formed by lithographic process.

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95. (original): Method of claim 91, in which the etching step of step c is one of the following processes: reactive ion etching (RIE), plasma etching, isotropic wet etching, laser etching, electromechanical etching, photoetching, electrostatic discharge etching or any combination thereof.

96. (original): Method of claim 91, in which the angle between said major surface of the semiconductor wafer and said side walls of said cavity is in the range if 85°...95°.

97. (original): Method of claim 91, in which said second protective layer

contains at least one of the following materials: silicon dioxide, silicon nitride, silicon carbide, photoresist, polyimide or metal.

98. (original): Method of claim 91, wherein said deep anisotropic etching of step c uses at least one of the following etching agents: alkali metal hydroxide, tetramethyl-ammonium hydroxide, ethylenediamine, hydrazine, gallic acid.

99. (original): Method of claim 91, wherein said deep anisotropic etching of step c is performed in the presence of ultrasonic or megasonic vibrations in the etching solution.

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100. (original): Method of claim 91, wherein said wafer contains bar or grid-like structure and at least one diaphragm.

101. (original): Method of claim 91, wherein said microstructure contains bar or grid-like structure and at least one through hole.

102. (original): Method of claim 91, wherein said microstructure contains bar or grid-like structure and at least one channel.

103. (original): Method of claim 102, further comprising an additional isotropic etching step after said deep anisotropic etching.

104. (original): Method of claim 103, in which said isotropic etching is wet chemical etching using at least one of the
following etch agents: nitric acids, hydrofluoric acid, acetic acid.

105. (original): Method of claim 104, in which said isotropic etching is plasma etching.

106. (original): Method of claim 91, wherein two etching steps other than isotropic and anisotropic etching are used for said deepening of at least one cavity before said deep anisotropic etching and with the first of said two etch steps being reactive ion etching (RIE) and the second of said two steps is isotropic etching.

107. (original): Method of claim 106, wherein said isotropic etching is wet chemical etching using at least one of the following etch agents: nitric acids, hydrofluoric acid, acetic acid.

108. (original): Method of claim 106, wherein isotropic etching is plasma etching.

109. (original): Method of claim 91, further comprising the additional step of local RIE etching of the bottom of the cavity through the openings in the grid-like structure at the surface of the wafer, whereby said opening in the grid-like structure serves as a mask.

110. (original): Method of claim 109, further comprising an additional step of deposition of a material on the surface of silicon wafer for closing the opening in said grid-like structure.

111. (original): Method for fabricating microstructures according to claim 109, where said material of the deposition step contains at least one of the following substances: polycrystalline silicon, silicon dioxide, silicon nitride, silicon carbide, gold, copper, nickel, silver, parylen, polyimide, Teflon and spin-on-glass.

112. (original): Method of claim 91, further comprising the steps of:

h. local deposition of the masking material to the bottom of the cavity through the openings in the grid-like structure at the surface of the wafer, whereby said openings in the grid-like structure serve as a mask; and

i. local etching of the unmasked areas at the bottom of the cavity through the openings in the grid-like structure at the surface of the wafer.

113. (original): Method of claim 91, further comprising an additional isotropic etching step after said deep anisotropic etching of step g.

114. (original): Method of claim 113, in which said additional isotropic etching is wet chemical etching using at least one of the following etch agents: nitric acids, hydrofluoric acid, acetic acid.

115. (original): Method of claim 113, in which said isotropic etching is plasma etching.